

Claims

- [c1] 1. An integrated circuit comprising:
a substrate;
a power rail;
sea of gates; and
a latchup control isolation network electrically coupled to said substrate,
said latchup control isolation network adapted to electrically isolate said
sea of gates from said power rail.
- [c2] An integrated circuit according to claim 1, wherein said substrate has a
voltage potential.
- [c3] An integrated circuit according to claim 2, wherein said latchup control
isolation network is turned off thereby isolating said sea of gates from
said power rail when either said voltage potential equals or is greater
than a first predetermined value or said voltage potential equals or is less
than a second predetermined value.
- [c4] An integrated circuit according to claim 3, wherein said first
predetermined value is $V_{DD} + V_{be}$.
- [c5] An integrated circuit according to claim 3, wherein said second
predetermined value is $V_{SS} - V_{be}$.
- [c6] An integrated circuit according to claim 1, wherein said latchup control
isolation network includes an inverter circuit.
- [c7] An integrated circuit comprising:

a substrate;
a power rail;
a sea of gates; and
an active clamp network electrically coupled to said substrate, said active clamp network adapted to electrically isolate said sea of gates from said power rail.

- [c8] An integrated circuit according to claim 5, wherein said substrate has a voltage potential.
- [c9] An integrated circuit according to claim 8, wherein said active clamp network is turned off thereby isolating said sea of gates from said power rail when either said voltage potential equals or is greater than a first predetermined value or said voltage potential equals or is less than a second predetermined value.
- [c10] An integrated circuit according to claim 9, wherein said first predetermined value is V_{DD} .
- [c11] An integrated circuit according to claim 9, wherein said second predetermined value is V_{SS} .
- [c12] A method of suppressing latchup in an integrated circuit in a substrate, said circuit having a sea of gates and a power rail, comprising the steps of:
electrically connecting one of a latchup control isolation network and an active clamp network to the substrate; and
turning off said latchup control isolation network, when connected in said

prior step, or turning on said active clamp network, when connected in said prior step, thereby isolating the power rail from the sea of gates.

[c13] A method according to claim 12, further comprising the step of providing voltage potential in said substrate.

[c14] A method according to claim 13, wherein if said latchup control isolation network is connected in said electrically connecting step, said latchup control isolation network is turned off thereby isolating said sea of gates from said power rail when either said voltage potential equals or is greater than a first predetermined value or said voltage potential equals or is less than a second predetermined value.

[c15] A method according to claim 14, wherein said first predetermined value is $V_{DD} + V_{be}$.

[c16] A method according to claim 14, wherein said second predetermined value is $V_{SS} - V_{be}$.

[c17] A method according to claim 13, wherein if said latchup control isolation network is connected in said electrically connecting step, said active clamp network is turned off thereby isolating said sea of gates from said power rail when either said voltage potential equals or is greater than a first predetermined value or said voltage potential equals or is less than a second predetermined value.

[c18] A method according to claim 17, wherein said first predetermined value is V_{DD} .

[c19] A method according to claim 17, wherein said second predetermined value is V_{SS} .